



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,079	02/03/2004	Oscar E. Agazzi	13469US03	4537

23446 7590 06/02/2008
MCANDREWS HELD & MALLOY, LTD
500 WEST MADISON STREET
SUITE 3400
CHICAGO, IL 60661

EXAMINER

CORRIELUS, JEAN B

ART UNIT	PAPER NUMBER
----------	--------------

2611

MAIL DATE	DELIVERY MODE
-----------	---------------

06/02/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 7, 11, 17, 18, 23 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aly et al US Patent No. 4,995,031 in view Kobayashi et al US patent No. 5,809,071.

As per claim 1, Aly et al teaches a feedforward equalizer 126 (see col. 5, lines 54-56) for equalizing a sequence of signal samples see col. 5, lines 53-54 inherently received from a remote transmitter, the "feedforward equalizer" being included in a receiver see fig. 1 having a decoder 140, the "feedforward filter" comprising: a non-adaptive filter fig. 11 operable to receive the signal samples col. 5, lines 53-54 and producing a filtered signal; a circuit 132 considered as the claimed "noise cancellation stage" operable to subtract from the filtered signal (output of filter 126) a signal see

output of 128 considered as the claimed "noise signal" received from circuit 128 corresponding to the claimed "noise computing module" of the receiver see fig. 1 and produced a noise reduced filtered signal see fig. 1. However, it fails to teach the further limitation a gain stage operable to receive the noise reduced filtered signal and to adjust the gain of the feedforward equalizer by adjusting the amplitude of the noise reduced filtered signal, the amplitude of the noise reduced filtered signal being adjusted so as to fit in operational range of the decoder. Kobayashi et al teaches a gain stage (3b) coupled to a filter 3a, the gain stage allowing adjustment of the gain of the feedforward equalizer by adjusting the level (amplitude) of the filtered signal (note that a filtered signal inherently is a noise reduced signal) I, the level (amplitude) of the noise reduced filtered signal being adjusted so as to fit in an operational range of the decoder see col. 6, lines 43-54. It would have been obvious to one skill in the art to incorporate such a teaching in Kobayashi et al so as to fit in operational range of the decoder, as taught by Kobayashi et al.

As per claim 2, the "feedforward equalizer" inherently does not enhance noise because the function of the equalizer is to remove noise component in the received signal.

As per claim 7, note that the function of the equalizer is to remove ISI induced by any source from the received signal and that would inherently includes ISI generated by a pulse shaping filter if such device was included in transmitter.

As per claim 11, it would have been obvious to one skill in the art to implement the equalizer as a programmable equalizer in order to be able to modify its

characteristics parameter based on the changing channel condition so as to enhance signal processing.

As per claim 17, see claim 1.

As per claim 18, see claim 2.

As per claim 23, see claim 7.

As per claim 27, see claim 11.

4. Claims 3 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aly et al US Patent No. 4,995,031 in view Kobayashi et al US patent No. 5,809,071 in further in view of Lee US patent No. 6,055,119.

As per claim 3, as applied to claim 1 above, Aly and Kobayashi teach the invention as claimed and Aly further teaches the additional limitation of the timing recovery device setting a sampling phase see col. 9, lines 9, lines 21-36. However, Aly and Kobayashi do not teach the further limitations of “wherein the feedforward equalizer does not affect the sampling phase setting of the timing recovery module of the receiver”. Lee teaches the apparatus in which the feedforward equalizer 13 does not affect the sampling phase setting of the timing recovery module 12 of the receiver fig. 1. See col. 1, line 65-col. 2, line 4. Given that fact, it would have been obvious to one skill in the art to modify Aly and Kobayashi et al to prevent the feedforward equalizer from affecting the sampling phase setting of the timing recovery module of the receiver as suggested by Lee in order to optimize sampling timing of the input signal as taught by Lee see col. 1, line 31.

As per claim 19, see claim 3.

Response to Arguments

5. Applicant's arguments filed 4/28/08 have been fully considered but they are not persuasive. It is alleged that the art of record does not teach a noise cancellation stage that is **situated before** the gain stage of the feedforward equalizer is not taught by the prior art of record. However such limitation is not fully recited in the claim. The invention as claimed is unpatentable over the prior art of record as set forth in the above prior art rejection.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is 571-272-3020. The examiner can normally be reached on Monday-Thursday from 9:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jean B Corrielus/
Primary Examiner
Art Unit 2611